

b.) Remarks

Claims 2 and 35 have been amended in order to recite the features of original claim 10. Additionally, Claims 13, 17, 37 and 41 are amended in conformity therewith and claim 18 is amended to correct a minor formatting error. New claims 42-46 are presented in order to more specifically recite various preferred embodiments of the present invention. Accordingly, no new matter has been added.

For the Examiner's convenience, new claims 42-46 are identical to pending claims 17 and 19-22, respectively. Accordingly, the subject matter of this amendment, which presents fewer total claims, was all before the Examiner and requires neither further search nor additional consideration.

The claims remain rejected under 35 U.S.C. §102(b) as being anticipated or as obvious over the art of record. In the Examiner's bases of rejection, set forth in detail at pages 3-7 of the Office Action, the Examiner explained why Applicants' discussion concerning "concentrated product of the culture broth" is inadequate (see the paragraph bridging pages 3 and 4), and has invited Applicants to amend the claims to better recite this salient feature.

In response, claims 2 and 35 are amended in conformity with the Examiner's kind suggestion, e.g., to replace the term "culture broth" with --culture--.

As pointed out by the Examiner and as a result of the amendment, all the enzyme sources provided by a "culture" and any "treated product of the culture" used in the present invention necessarily contain cells.

Regarding the first full paragraph on page 4 in the Office Action, the present specification discloses at page 36, lines 3-6 that since the wet cells can be preserved frozen, the present invention permits their use if thawed prior to use. This does not mean cells are

lysed by freeze-thawing to obtain released enzyme.<sup>1/</sup>

Additionally, WO 99/36555 discloses producing GDP-fucose by two-step enzyme reactions in which GDP-mannose is used as a substrate, Gmd<sup>2/</sup> and YEF B are used as enzyme source, and NADPH must be added, as shown in page 52 and claim 17.

On the other hand, the production process of GDP-fucose recited in pending claims 2 or 35 utilizes a culture of a microorganism capable of producing GKDM from a GTP precursor or GTP and a saccharide selected from glucose, fructose and mannose to form and accumulate GKDM. Then a culture of a microorganism capable of producing GDP-fucose from GKDM is added to convert the accumulated GKDM into GDP-fucose. In the present invention, since cells *per se*, whether treated or otherwise, are used as the enzyme source, it is not necessary to add NADPH as discussed above.

The production process disclosed in EP 870841 directly produces GDP-fucose via GKDM using a culture of a recombinant microorganism capable of producing GDP-fucose from a GTP precursor or GTP using a saccharide and a GTP precursor or GTP as substrates. EP 870841 does not, whether or not combined with WO 99/36555, teach or suggest forming and accumulating GKDM, and then adding thereto a culture of a microorganism capable of producing GDP-fucose from GKDM.

Claims 3 and 24-32 are also provisionally rejected for obviousness type

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<sup>1/</sup> It is apparent that no enzyme source obtained by lysing the cells with freeze-thawing is contemplated since NADPH is not used in Example 5, whereas NADPH must be added in WO 99/36555. That is, as seen in WO 99/36555, YEF B (corresponding to wcaG in the present invention) capable of converting GKDM into GDP-fucose is an enzyme using NADPH as a coenzyme. Accordingly, NADPH must be added to the reaction solution as disclosed at page 52 of WO 99/36555.

On the other hand, Example 5 metabolizes glucose, fructose or mannose and NADPH is produced, so it is not necessary to specially add NADPH to the reaction system.

<sup>2/</sup> An enzyme capable of converting GDP-mannose to GKDM.

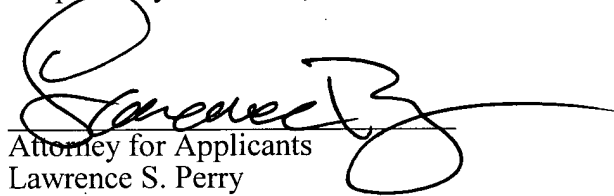
double patenting over claims of co-pending application No. 09/068,528. Although this provisional rejection is respectfully traversed, these claims have been cancelled in order to reduce the issues.

In view of the above amendments and remarks, Applicants submit that all of the Examiner's concerns are now overcome and the claims are now in allowable condition. Accordingly, reconsideration and allowance of this application is earnestly solicited.

Claims 2, 9-22, 35 and 37-46 remain presented for continued prosecution.

Applicants' undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,



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